

Division of Extramural Research and Training Third Annual Scientific Retreat

The Division of Extramural Research and Training third annual scientific retreat was held in Wilmington, North Carolina, on 21–22 November 2002. The purpose of the retreat was to explore opportunities in new and existing topics related to the theme “transitional research: where basic science has provided mechanisms/tools to intervene/prevent disease,” and to discuss how these opportunities can be incorporated into current environmental health science research. The retreat was developed around the following three scientific sessions:

Evaluation of Science: Models for Determining Scientific and Public Health Impact and Policy

In light of the recent emphasis on evaluating research impact, this session examined the value and challenges of evaluating science and technology, the power of economic analysis in scientific evaluation, and current mechanisms to support evaluations of NIH programs.

Arsenic Exposure: Mechanisms, Speciation, and Policy

This session addressed molecular mechanisms of arsenic exposure, speciation and toxicity of arsenic, and arsenic risk assessment and risk management. Three main points from the presentations included:

- *New technologies:* We need to use microarrays/proteomics to examine molecular signatures.
- *Coordination among researchers:* Various models and approaches are being used to understand the impact of chronic low-dose arsenic exposure. We need to develop further mechanisms to promote coordination among researchers.
- *Developmental effects:* As a co-genotoxicant and co-mutagen, we must examine the impact of arsenic on fetal programming and imprinting.

Environmental Medicine: Cases from an Emerging Discipline

This session focused on how basic research can be translated to increase awareness of environmentally related diseases and to establish prevention programs. Presenters highlighted useful resources, discussed how this approach is currently being taken, and identified gaps and next steps:

- *Association of Occupational and Environmental Clinics:* This is a potential resource for NIEHS collaborations to translate environmental health research into knowledge and tools for use in clinics around the country.
- *Translating mechanistic research into public health interventions:* It is important to identify biomarkers for early disease detection to have the greatest public health impact.
- *New challenges in research in pediatric environmental medicine:* Prevention of diseases of environmental origin in children will depend on the translation of research findings along with risk assessment, legislation, toxicity testing of chemicals, and developmental testing.
- *Psychosocial stressors and biological/physical exposures:* Conclusions from recent case studies indicate that psychosocial stressors combined with physical exposures leads to disease. Findings further suggest that behavioral factors must be considered when developing health and safety standards.

Invited Speakers

Barry Bozeman
Georgia Institute of Technology

Phil Landrigan
Mount Sinai School of Medicine

Diane Buckley
NIH

Josh Hamilton
Dartmouth Medical School

H. Vasken Aposhian
University of Arizona

Barbara Beck
Gradient Corporation

Katherine Kirkland
Association of Occupational and Environmental Clinics

John Groopman
The Johns Hopkins Bloomberg School of Public Health

Alan Woolf
Children's Hospital Boston

Nancy Fiedler
Rutgers/Environmental and Occupational Health Sciences Institute

Sanders Chai
University of Washington

David Garabrant
University of Michigan